

Shasta Regional Climate Action Plan Greenhouse Gas Inventory Discussion

March 16, 2012



AECOM

Presentation Overview

- The Baseline GHG Inventory
 - Countywide baseline and jurisdictional inventories
 - Individual city inventories
 - City and county comparisons
- Understanding the Largest Sources of GHG Emissions
 - Transportation Sector
 - Energy Sector
 - Waste / Water Sector
- Future GHG Emission Projections (2020, 2035 and 2050)
 - Countywide emissions projection
 - Individual city emissions projection
- Statewide reductions



GHG Baseline Inventory



What is a Greenhouse Gas Inventory?

Calculation of a community's greenhouse gas emissions for a single year based on emissions generating activities.

Sectors

Energy consumption (in buildings)
Transportation
Solid Waste
Water Consumption
Wastewater Treatment
Stationary Sources (Industrial)
Agriculture
Forestry
Off-Road Vehicle Operation
Recreation (e.g., boating)

Example

8,845 million gallons of water used in Redding resulted in 8,208 metric tons of emissions in 2008.

Results of the Countywide GHG Inventory

Countywide Total GHG Emissions Inventory

	<i>Total Baseline 2008 Emissions</i>	
	<i>MT CO₂e</i>	<i>Percentage</i>
Energy Consumption	647,618	14%
Transportation	897,698	21%
Solid Waste	102,083	2%
Agriculture	132,234	3%
Forestry	156,538	3%
Water Consumption	17,817	0.4%
Wastewater Treatment	22,898	0.5%
Off-Road Vehicles and Equipment	75,330	2%
Recreation	53,005	1%
Stationary Sources	2,425,415	53%
Total	4,530,636	100%



Countywide Jurisdictional Inventory – Emissions that the County has control over

Countywide Jurisdictional GHG Emissions Inventory

	<i>Operational Baseline 2008 Emissions</i>	
	<i>MT CO₂e</i>	<i>Percentage</i>
Energy Consumption	647,618	31%
Transportation	897,698	43%
Solid Waste	102,083	5%
Agriculture	132,234	6%
Forestry	156,538	7%
Water Consumption	17,817	1%
Wastewater Treatment	22,898	1%
Off-Road Vehicles and Equipment	75,330	4%
Recreation	53,005	3%
Total	2,105,221	100%

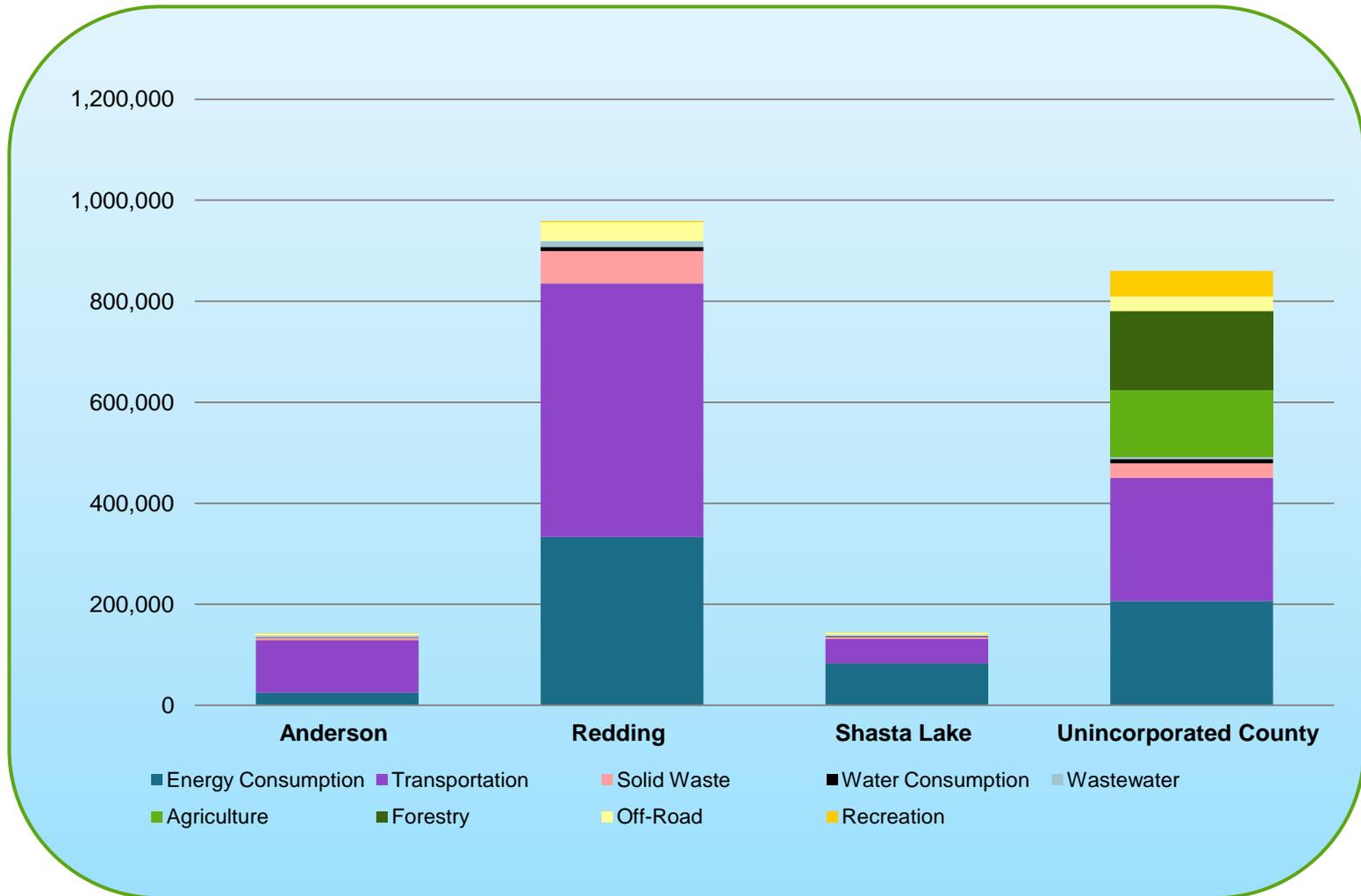
Comparison of Jurisdictional GHG Inventory for Cities and Unincorporated County areas

Greenhouse Gas Emissions Inventory by Jurisdiction

	<i>Baseline 2008 Emissions (MT CO₂e/Year)</i>							
	<i>Anderson</i>		<i>Redding</i>		<i>Shasta Lake</i>		<i>Unincorporated County</i>	
Energy Consumption	25,113	18%	333,253	35%	82,943	58%	206,309	24%
Transportation	103,728	73%	502,196	52%	48,106	33%	243,668	28%
Solid Waste	5,057	4%	63,653	7%	4,139	3%	29,233	3%
Water Consumption	661	0.5%	8,208	1%	946	1%	8,001	1%
Wastewater	3,495	2%	11,735	1%	3,327	2%	4,340	1%
Agriculture	0	0%	0	0%	0	0%	132,234	15%
Forestry	0	0%	0	0%	0	0%	156,538	18%
Off-Road	4,372	3%	37,407	4%	4,249	3%	29,302	3%
Recreation	247	0.2%	2,117	0.2%	240	0.2%	50,401	6%
Total	142,674		958,570		143,950		860,027	



Comparison of Cities and Unincorporated County

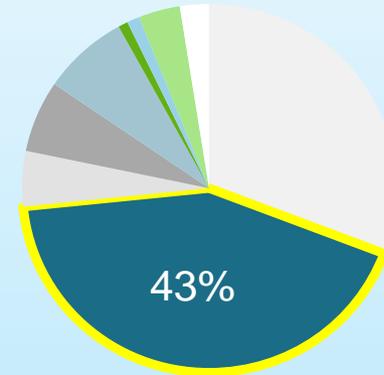


Understanding the Largest Sources of Emissions



Transportation Sector

Transportation emissions composes nearly one half of total emissions in Shasta County



Vehicle Miles Traveled per Household per Day

Anderson



135

Redding



69

Shasta Lake



60

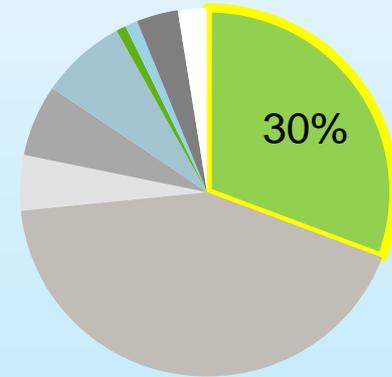
Unincorporated



48

Energy Sector

Building energy use generates almost a third of total emissions in Shasta County



Electricity Consumption (kWh) per Household per Year

Anderson



8,490

Redding



11,211

Shasta Lake



10,232

Unincorporated

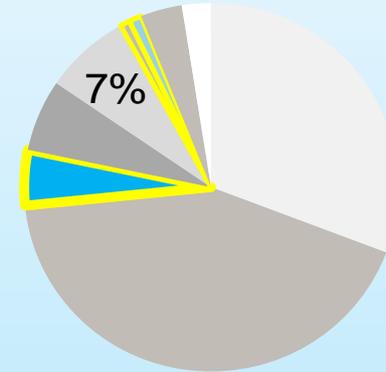


11,452

Waste, Wastewater, Water Sectors

Solid waste generates 5% of total emissions in Shasta County

Water consumption and wastewater treatment combined generate 2% of total emissions



Annual Metric Tons of Waste to Landfills

Anderson



9,491

Redding



88,238

Shasta Lake



8,022

Unincorporated

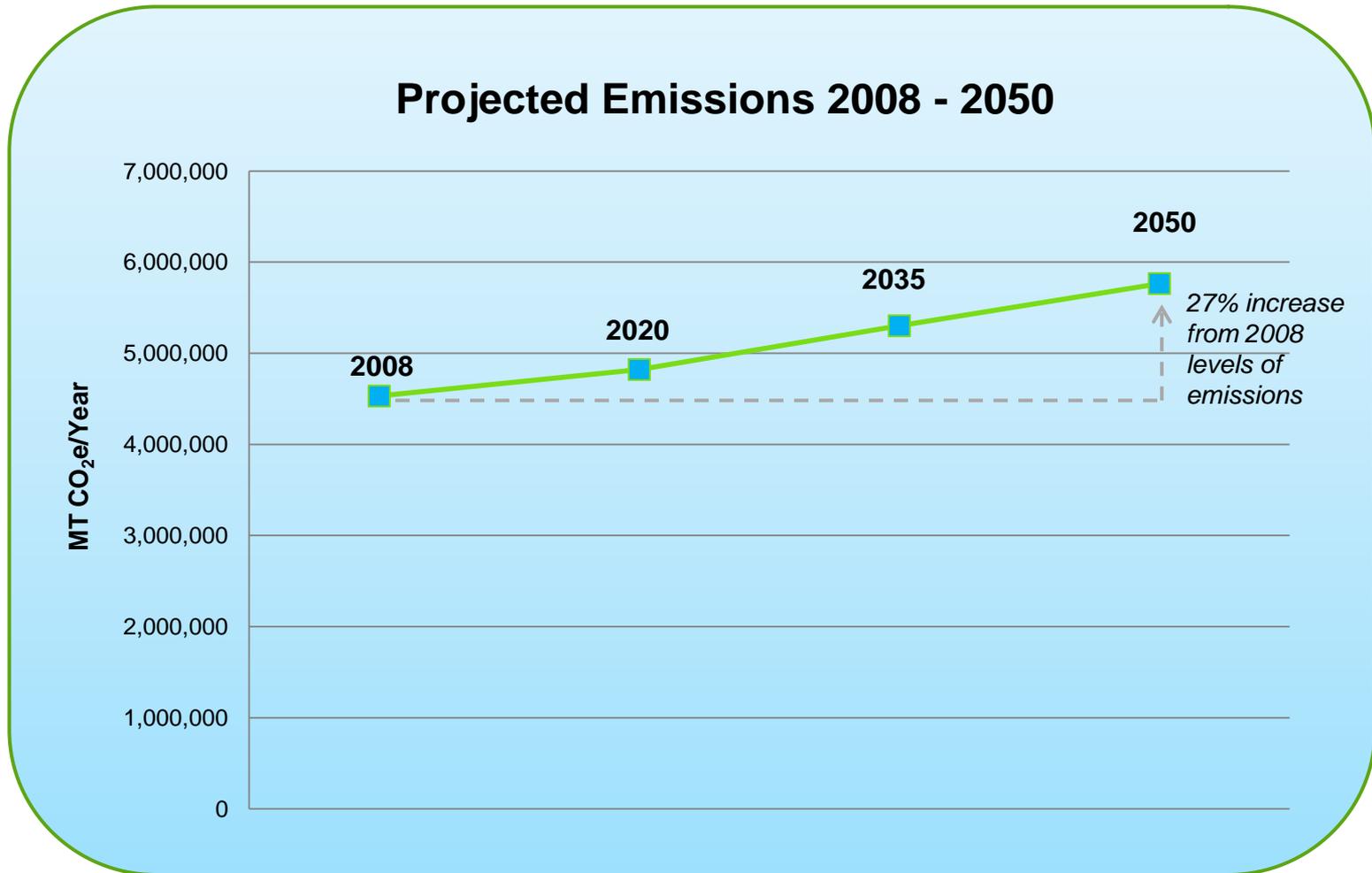


73,865

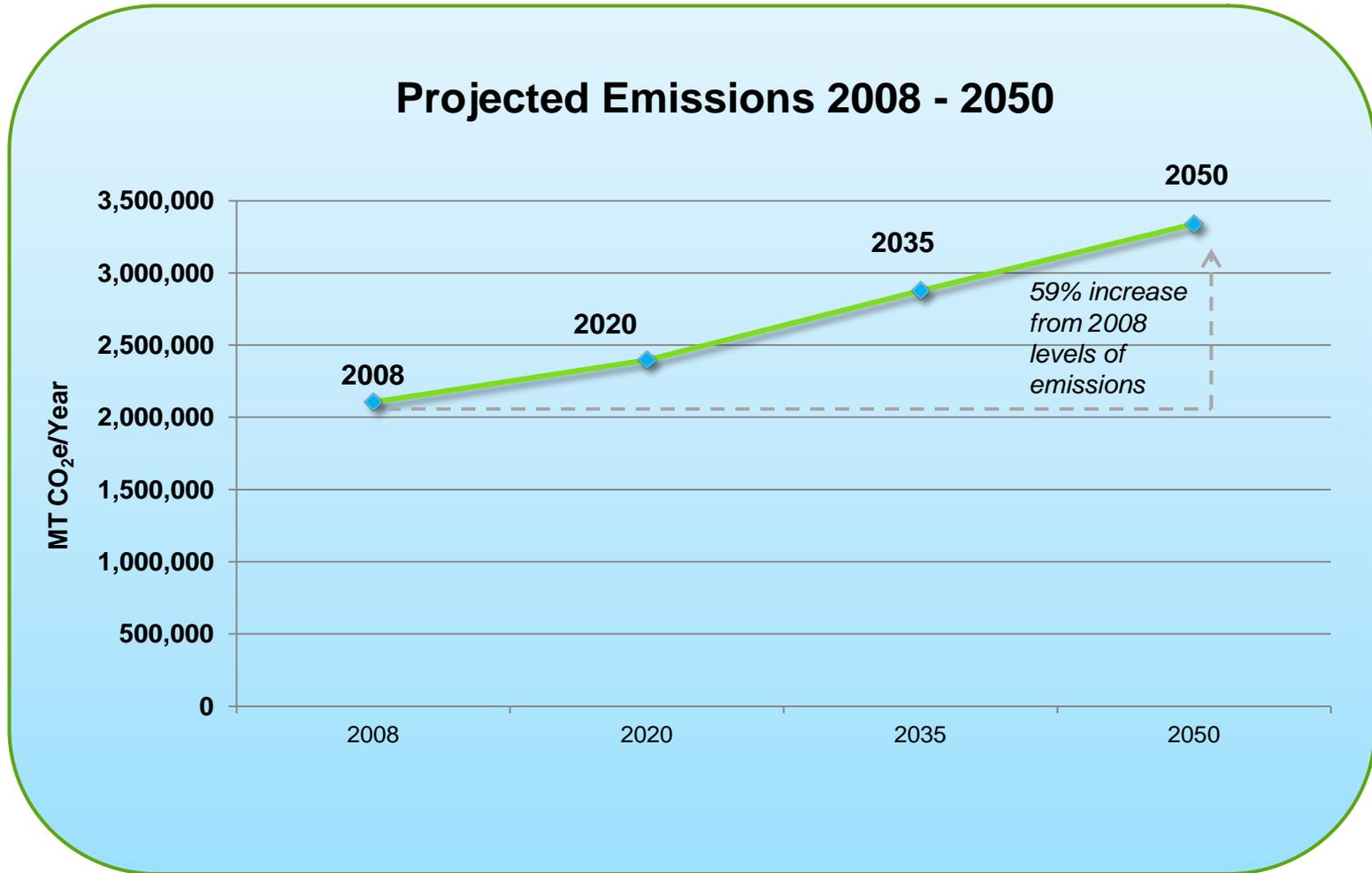
Projections (2020, 2035, 2050)



Projected Countywide Total Emissions



Projected Countywide Jurisdictional Emissions



Projected Countywide Jurisdictional Emissions

Countywide Greenhouse Gas Projected Emissions

	<i>Jurisdictional GHG Emissions 2008 - 2050</i>				
	<i>2008</i>	<i>2020</i>	<i>2035</i>	<i>2050</i>	<i>% Change 2008 - 2050</i>
Energy Consumption	647,618	709,844	842,476	995,450	54%
Transportation	897,698	1,070,175	1,304,064	1,543,862	72%
Solid Waste	102,083	111,748	126,852	142,344	39%
Agriculture	132,234	132,234	132,234	132,234	0%
Forestry	156,538	156,538	156,538	156,538	0%
Water Consumption	17,817	19,443	22,146	24,848	39%
Wastewater Treatment	22,898	25,100	28,408	31,875	39%
Off-Road Vehicles and Equipment	75,330	95,197	131,650	148,351	97%
Recreation	53,005	76,364	131,943	163,874	209%
Total	2,105,221	2,396,644	2,876,312	3,339,375	59%



Projected Emissions for Unincorporated County areas

Unincorporated County GHG Projected Emissions

	<i>Jurisdictional GHG Emissions 2008 - 2050</i>				
	<i>2008</i>	<i>2020</i>	<i>2035</i>	<i>2050</i>	<i>% Change 2008 - 2050</i>
Energy Consumption	206,309	226,132	268,384	317,117	54%
Transportation	243,668	275,326	335,539	397,095	63%
Solid Waste	29,233	31,498	36,221	40,627	39%
Agriculture	132,234	132,234	132,234	132,234	0%
Forestry	156,538	156,538	156,538	156,538	0%
Water Consumption	8,001	8,621	9,914	11,120	39%
Wastewater Treatment	4,340	4,677	5,378	6,032	39%
Off-Road Vehicles and Equipment	29,302	37,030	51,210	57,706	97%
Recreation	50,401	72,454	126,282	157,311	212%
Total	860,027	944,511	1,121,700	1,275,779	48%



Projected Emissions for Redding

City of Redding GHG Projected Emissions

	<i>Jurisdictional GHG Emissions 2008 - 2050</i>				
	2008	2020	2035	2050	% Change 2008 - 2050
Energy Consumption	333,253	365,273	433,524	512,241	54%
Transportation	502,196	614,881	744,531	874,830	74%
Solid Waste	63,653	70,179	79,350	89,063	40%
Water Consumption	8,208	9,050	10,232	11,485	40%
Wastewater Treatment	11,735	12,939	14,629	16,420	40%
Off-Road Vehicles and Equipment	37,407	47,272	65,374	73,667	97%
Recreation	2,117	3,178	4,601	5,334	152%
Total	958,570	1,122,771	1,352,243	1,583,040	65%



Projected Emissions for Shasta Lake

City of Shasta Lake GHG Projected Emissions

	<i>Jurisdictional GHG Emissions 2008 - 2050</i>				
	2008	2020	2035	2050	% Change 2008 - 2050
Energy Consumption	82,943	90,912	107,899	127,491	54%
Transportation	48,106	56,608	78,196	104,443	117%
Solid Waste	4,139	4,658	5,369	6,021	45%
Water Consumption	946	1,065	1,227	1,376	45%
Wastewater Treatment	3,327	3,744	4,316	4,840	45%
Off-Road Vehicles and Equipment	4,249	5,369	7,425	8,367	97%
Recreation	240	361	523	606	152%
Total	143,950	162,716	204,954	253,144	76%



Projected Emissions for Anderson

City of Anderson GHG Projected Emissions

	<i>Jurisdictional GHG Emissions 2008 - 2050</i>				
	2008	2020	2035	2050	% Change 2008 - 2050
Energy Consumption	25,113	27,526	32,669	38,601	54%
Transportation	103,728	123,360	145,798	167,495	61%
Solid Waste	5,057	5,414	5,911	6,632	31%
Water Consumption	661	708	773	867	31%
Wastewater Treatment	3,495	3,741	4,085	4,583	31%
Off-Road Vehicles and Equipment	4,372	5,525	7,641	8,611	97%
Recreation	247	371	538	623	152%
Total	142,674	166,646	197,415	227,412	59%

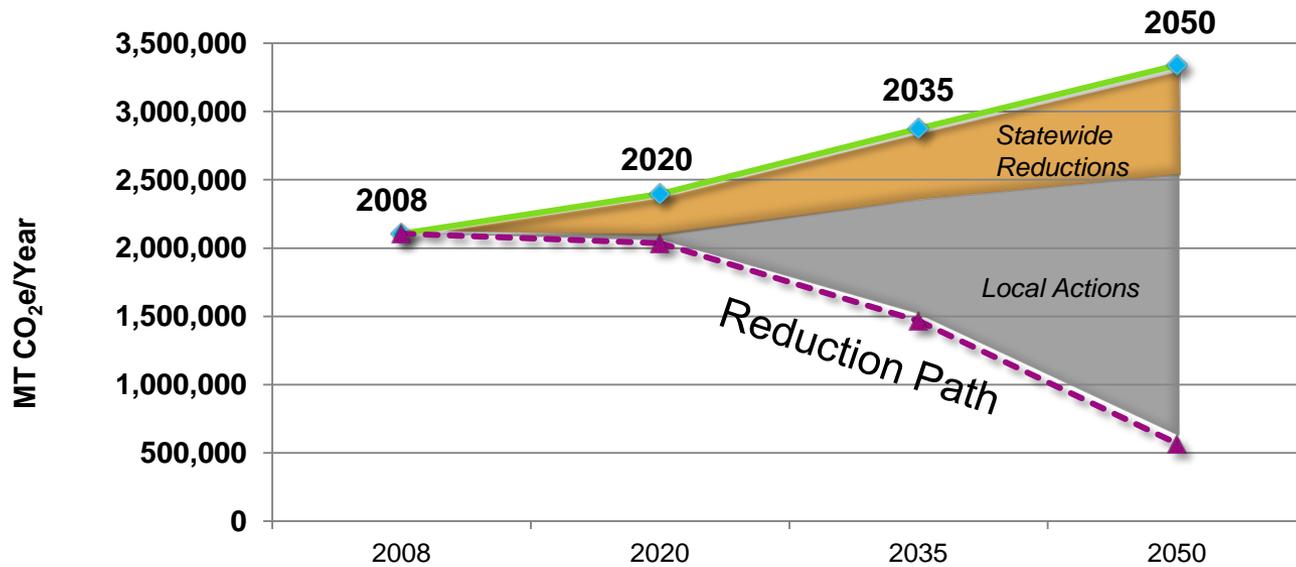


Statewide Reductions



Statewide and Federal Actions

GHG Emissions 2008 to 2050



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